

110,639

PATENT



SPECIFICATION

Application Date, Nov. 24, 1916. No. 16,837/16.

Complete Left, May 23, 1917.

Complete Accepted, Nov. 1, 1917.

PROVISIONAL SPECIFICATION.

Improvements in Tricycles specially applicable for Invalids or the like.

I, JAMES FRANCIS HOUGH, of 60, Sussex Road, Southport, Cycle Manufacturer, do hereby declare the nature of this invention to be as follows:—

This invention relates to improvements in tricycles for the use of invalids or the like of that type in which the tricycle is provided with two front wheels and a smaller rear wheel by means of which the tricycle is steered, the front wheels being driven by hand and the seat carriage or the like for the rider being supported between the front driving wheels.

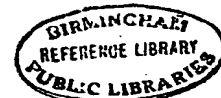
According to this invention the frame comprises a main backbone connected to the head of the fork of the rear wheel depending down and passing centrally along the machine where it is joined to a transverse tube coupling across the inner members of both front forks. The backbone is reinforced by an upper neck rail coupling the top of the rear head to a part of the backbone about the rear of the front wheels where it is connected to the backbone by a short vertical stay. The front wheels are carried in single vertical forks, from the heads of which curved rails pass round the peripheries of the front wheels to points below the backbone, these lowest extremities of the curved rails being joined across by a transverse rail, a short vertical stay rail connecting the transverse rail to the backbone at its central point. This constitutes the main framework of the machine.

In order to prevent racking of the front forks a distension rail is provided detachably connecting across the lowest extremities of the inner members of the front forks. This distension rail is provided with lugs at each end, one lug having a perforation taking over the axle end at one side and the other lug having a slot to engage the axle of the other wheel, the distension rail being held by nuts. The seating accommodation which may be an ordinary seat, a bath chair type of receptacle, or otherwise, is not carried on a seat pillar or pillars as usual, but on short cross bars, the rear cross bar being supported from an extension of the upper neck tube from the point where it is connected to the backbone and the front cross bar being supported by a short vertical stay from the forward end of the backbone. Such an arrangement provides an extremely rigid means for supporting the seat or the like.

In addition to the usual means for steering such tricycles, which consists in providing the spindle of the rear forks with a padded backpiece by pressing on which at either side the rider controls the steering, a hand lever is provided, pivotally carried from the lower rear transverse rail, such lever passing up conveniently at one side of the seating accommodation and being coupled by a

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link to an arm carried from the rear forks. By operating the hand lever, therefore, the rear forks may be swung angularly in the head and the steering of the tricycle controlled additionally to the usual control exerted by the pressure of the back of the rider. This hand lever may be detachably connected to the lower transverse rail by pivotally mounting it on a short angle bracket, the threaded stem of which is passed through two curved saddle pieces disposed on either side of the rear transverse rail and through perforations in opposite sides of the rail, a nut on the extreme end of the threaded stem gripping the saddle pieces about the transverse stay against a fixed shoulder on the stem. The threaded stem may be provided with a flat or flats and the perforations in the saddle pieces and the lower transverse rail shaped to correspond, thus preventing twisting of the bracket in its socket.

By eliminating the horizontal forks and providing the framework with vertical forks only a considerable economy and simplicity in construction is achieved.

The front wheels are driven by separate chains the upper sprockets of which are operated by two separate handles.

Dated this 23rd day of November, 1916.

For the Applicant,

A. J. DAVIES,  
Patent Agent,  
37, Moorfields, Liverpool.

### COMPLETE SPECIFICATION.

#### Improvements in Tricycles specially applicable for Invalids or the like.

I, JAMES FRANCIS HOUGH, of 60, Sussex Road, Southport, Cycle Manufacturer, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to improvements in tricycles for the use of invalids or the like of that type in which the tricycle is provided with two front wheels and a smaller rear wheel by means of which the tricycle is steered, the front wheels being driven by hand and the seat carriage or the like for the rider being supported between the front driving wheels. In such hand driven tricycles the front wheels have been carried in horizontal and vertical forks connected by stays curved round the wheel peripheries, the vertical forks and rear of the curved stays being coupled together by transverse stays to which latter and the rear wheel fork the backbone of the machine was connected.

According to this invention the frame comprises a main backbone connected to the head of the fork of the rear wheel depending down and passing centrally along the machine where it is joined to a transverse tube coupling across the inner members of both front forks. The backbone is reinforced by an upper neck rail coupling the top of the rear head to a part of the backbone about the rear of the front wheels where it is connected to the backbone by a short vertical stay. The front wheels are carried in single vertical forks only, from the heads of which curved rails pass round the peripheries of the front wheels to points below the backbone, these lowest extremities of the curved rails being joined across by a transverse rail, a short vertical stay rail connecting the transverse rail to the backbone at its central point. This constitutes the main framework

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of the machine. — A distension rail is provided across the lower extremities of the front forks, this distension rail being detachable; and in order to carry the seating accommodation, short cross bars are provided, the rear cross bar being supported from the neck tube and the front cross bar from a short vertical stay at the forward end of the backbone. Means in addition to the back-rest are also provided for steering and comprise a hand-lever pivotally carried from the lower rear transverse rail.

The invention is illustrated in the accompanying drawings in which Fig. 1 is a perspective view of the frame, Fig. 2 being a detail view of the distension rail, and Fig. 3 a detail of the steering lever.

In carrying out the invention the frame comprises a main backbone 1, connected to the head 2 of the forks 3 of the rear wheel 4, this backbone depending down at 1<sup>a</sup>, and passing centrally along the machine and being joined at 5 to a transverse tube 6, coupling across the inner members of both front forks 7. The backbone 1 is reinforced by an upper neck rail 8 coupling the top of the rear head 2 to the backbone 1 at about the rear of the large front wheels 9, the neck rail being connected to the backbone by a short vertical stay 10. The front wheels 9 are carried in single vertical forks 7 from the heads 11 of which curved rails 12 pass round the peripheries of the front wheels 9 to points below the backbone 1, these lower extremities of the rails 12 being joined across by a transverse rail 13, a short vertical stay 14 connecting the rail 13 to the backbone 1.

In order to prevent racking of the front forks 7 a distension rail 14 is provided detachably connecting across the lowest extremities of the inner members of the front forks 7. This distension rail is provided with lugs 15 at each end, one lug having a perforation 16 taking over the axle end at one side and the other lug having a slot 17 to engage the axle of the other wheel, the distension rail being held by nuts. The seating accommodation which may be an ordinary seat, a bath chair type of receptacle, or otherwise, is not carried on a seat pillar or pillars as usual, but on short cross bars 18, 19, the rear cross bar 18 being supported from an extension of the upper neck tube 8 from the point where it is connected to the backbone 1 and the front cross bar 19 being supported by a short vertical stay from the forward end of the backbone. Such an arrangement provides an extremely rigid means for supporting the seat or the like.

In addition to the usual means for steering such tricycles, which consists in providing the spindle of the rear forks with a padded backpiece 20 by pressing on which at either side the rider controls the steering, a hand lever 23 is provided, pivotally carried at 24 from the lower rear transverse rail 13, such lever passing up conveniently at one side of the seating accommodation and being coupled by a link 25 to an arm 26 carried from the rear forks. By operating the hand lever, therefore, the rear forks may be swung angularly in the head 2, and the steering of the tricycle controlled additionally to the usual control exerted by the pressure of the back of the rider. This hand lever 23 may be detachably connected to the lower transverse rail by pivotally mounting it on a short angle bracket, the threaded stem of which is passed through two curved saddle pieces disposed on either side of the rear transverse rail and through perforations in opposite sides of the rail, a nut on the extreme end of the threaded stem gripping the saddle pieces about the transverse stay against a fixed shoulder on the stem. The threaded stem may be provided with a flat or flats and the perforations in the saddle pieces and the lower transverse rail shaped to correspond, thus preventing twisting of the bracket in its socket.

By eliminating the usual horizontal forks connecting the axles of the front wheels to the lower point of the curved rails 12, and providing the frame-work with vertical forks 7 only, a considerable economy and simplicity in construction is achieved. The front wheels 9 are driven by separate handles 21 and chains and sprockets 22, and, if desired, the chain drive may be only at one side, a

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double crank handle between the heads of the front forks being provided in place of the separate handles 21 and in this case an ordinary loose trailer wheel could be fitted in the forks at the opposite side of the machine to that on which the chain drive is arranged.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. A hand-driven tricycle specially applicable for invalids or the like, in which the frame construction is characterised by single vertical forks only carrying the large front wheels, and a main backbone extending upwards towards the rear and connected to the head carrying the rear forks, said backbone being connected by a transverse rail to the inner members of the front forks and by a second transverse rail to the rear ends of curved rails passing round the front wheel peripheries to the heads of the front wheel forks. 10

2. In a hand-driven tricycle specially applicable for invalids or the like, as claimed in Claim 1, a detachable distension bar for preventing racking of the front forks coupling across the lower extremities of the front forks. 15

3. In a hand-driven tricycle specially applicable for invalids or the like, as claimed in Claim 1, carrying the seating accommodation on front and rear short cross bars, the front cross bar being supported from the backbone and the rear cross bar on the extremity of a neck tube reinforcing the rear of the backbone and connected to the rear head. 20

4. In a hand-driven tricycle specially applicable for invalids or the like, as claimed in Claim 1, a steering mechanism, in addition to the usual steering means by the back-rest, which consists in providing a handle pivotally carried from a bracket on the rear transverse stay and linked to an arm on the rear fork. 25

5. The improved hand-driven tricycle specially applicable for invalids or the like, constructed and arranged substantially as described and shown in Figs. 1, 2, and 3, of the accompanying drawings. 30

Dated this 8th day of May, 1917.

For the Applicant,

A. J. DAVIES,  
Patent Agent,  
37, Moorfields, Liverpool. 35

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ERRATUM.

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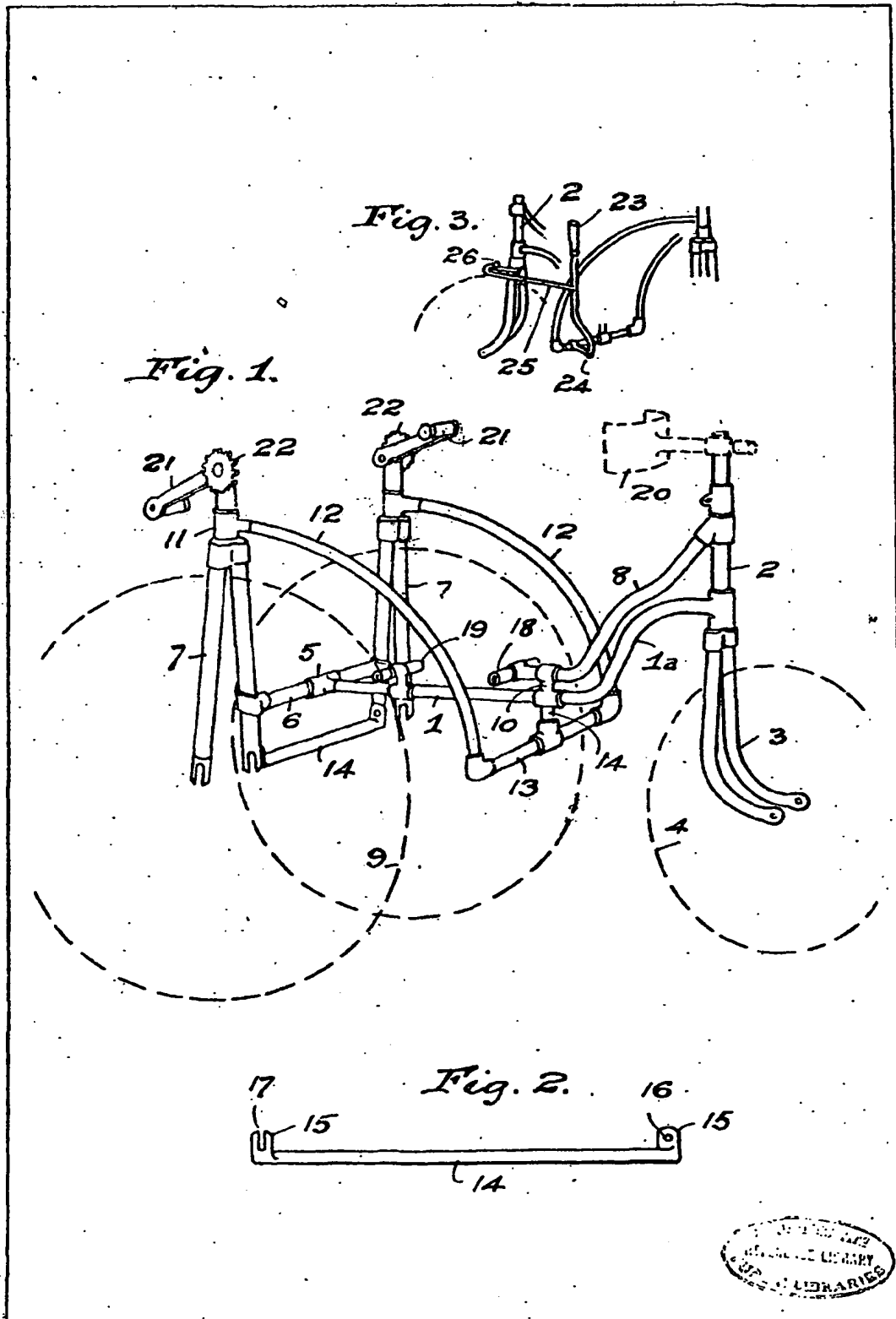
Page 3, line 44, *for "band" read "hand."*

PATENT OFFICE,

*May 23rd, 1918.*

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[This Drawing is a reproduction of the Original on a reduced scale.]



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